

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION

WILLEMS VAN DIJK, et al

Appln. No.: Not Assigned

Group Art Unit: Not Assigned

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Examiner: Not Assigned

For: OBJECT POSITIONING METHOD FOR A
LITHOGRAPHIC PROJECTION APPARATUS

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February 8, 2001

PRELIMINARY AMENDMENT

Hon. Commissioner of Patents
Washington, D.C. 20231

Sir:

Prior to the initial examination, please amend the above-identified patent application as follows:

IN THE ABSTRACT:

Please replace the Abstract of the Disclosure with the Abstract of the Disclosure attached on a separate sheet.

IN THE SPECIFICATION:

Please amend the specification as follows:

Page 1, line 1, insert and center:

--BACKGROUND OF THE INVENTION--;

between lines 1 and 2, insert: --1. Field of the Invention--;

line 2, delete "particular" and insert --particularly--;

between lines 10 and 14 insert: --2. Background of the Related Art--; and

line 14, before "should" insert --or "mask".

Page 2, line 27, delete "in one go" and insert --at once--.

Page 3, line 21, before "reflective" and insert --and/or--; and

line 22, after ", and" and insert --including--.

Page 6, between lines 11 and 15 insert:

--SUMMARY OF THE INVENTION--.

Page 9, line 1, insert:

--BRIEF DESCRIPTION OF THE DRAWINGS--; and

line 15, insert:

--DETAILED DESCRIPTION OF THE INVENTION--.

Page 13, line 25, delete "Whilst" and insert --While--.

IN THE CLAIMS:

Please amend the claims as follows:

1. (Amended) A method of positioning an object at a required position on an object table in a lithographic projection apparatus, comprising:
 - [a radiation system for supplying a projection beam of radiation;
 - a first object table for holding patterning means;
 - a second object table for holding a substrate; and

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a projection system for projecting the patterned beam onto a target portion of the substrate, characterised in that said method comprises the following steps:]

[a first placement step in which the] placing an object [is placed] at a first position on [the] a first object table;

[a] measuring [step in which] a displacement between the first position of the object and [the] a required position of the object [is determined];

[a] removing [step in which] the object [is released and removed] from the first object table;

[a] moving [step in which] the object and the first object table [are moved] relatively to each other by substantially the said displacement, in a direction substantially parallel to the plane of the table; and

[a second placement step in which] placing the object [is placed] at substantially the required position on the first object table.

2. (Amended) A method according to claim 1, wherein said measuring [step] comprises aligning a first mark on the object to a second, reference mark.

3. (Amended) A method according to claim 2, wherein said second mark is located on the [first or the second] one of the first object table and a second object table.

4. (Amended) A method according to claim 1 [or 2], wherein [the patterning means comprises] a mask is held by the first object table.

5. (Amended) A method according to claim [4] 2, wherein said second mark is located on [the] one of a mask [or the] and a substrate.

6. (Amended) A method according to claim 1, wherein said measuring [step] is accomplished using imaging means to determine the displacement between the first position of the object and the required position of the object.

7. (Amended) A method according to [any of the proceeding claims] claim 1, wherein said measuring [step] comprises processing information about the first position of the object, together with information regarding the required position of the object[, in calculation means,] to determine said displacement.

11. (Amended) A method of positioning a substrate at a required position on a substrate table, [characterised in that] said method [comprises the following steps] comprising:

[a first placement step in which] placing the substrate [is placed] at a first position on the table;

[a] measuring [step in which] a displacement between the first position of the substrate and [the] a required position of the substrate [is determined];

[a] removing [step in which] the substrate [is released and removed] from the table;

[a] moving [step in which] the substrate and the table [are moved] relatively to each other by substantially the said displacement, in a direction substantially parallel to the plane of the table; and

[a second placement step in which] placing the substrate [is placed] at substantially the required position on the table.

12. (Amended) A device manufacturing method comprising [the steps of]:

(a) providing a [second object] substrate table with a substrate which is at least partially covered by a layer of radiation-sensitive material;

(b) [using patterning means to endow the] patterning a projection beam [with] to produce a pattern in its cross-section; and

(c) projecting the patterned beam onto a target portion of the layer of radiation-sensitive material [, characterised in that, prior to step (c), the following actions are performed]:

[a first placement step in which] prior to said projecting, placing the substrate [is placed] at a first position on the [second object] substrate table;

[a] measuring [step in which] a displacement between the first position of the substrate and [the] a required position of the substrate [is determined];

[a] removing [step in which] the substrate [is released and removed] from the [second object] substrate table;

[a] moving [step in which] the substrate and the [second object] substrate table [are moved] relatively to each other by substantially the said displacement, in a direction substantially parallel to the plane of the second object table; and


[a second placement step in which] placing the substrate [is placed] at substantially the required position on the second object table.

REMARKS

Claims 1-13 are pending in this application. By this Preliminary Amendment, the specification and the Abstract of the Disclosure have been amended, and claims 1-7 and 11-12 have been amended to remove multiple dependencies and to conform to U.S. practice. Prompt and favorable consideration on the merits is respectfully requested.

Respectfully submitted,

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